

what matters: proportional reasoning

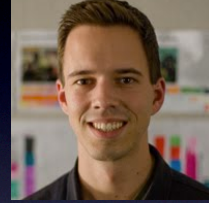
plenary 3

what to teach?

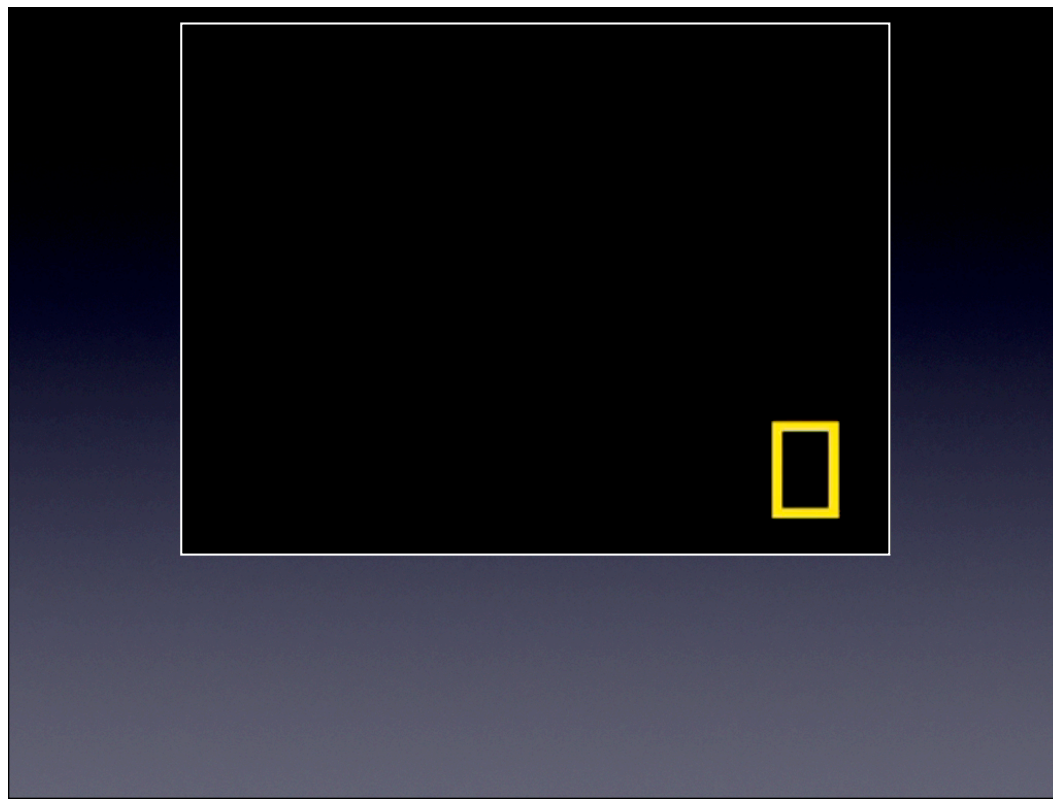
- inspired by an idea

video

“Dan Meyer” type
problem

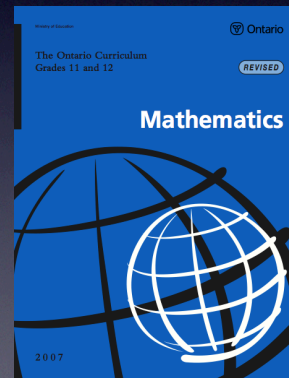
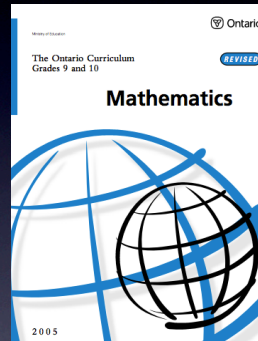
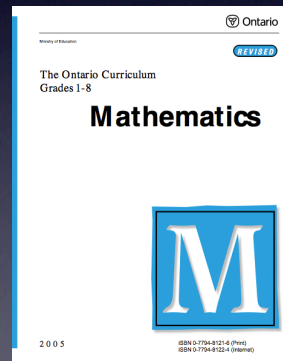


students watch video and raise questions
use video to solve problems they propose



- What problem?
- What ideas?
- Why valuable?

start here instead?



Where are you now?

- Choose one of the expectations on the handout.
- focus now?
- assessment now?

where do I focus.

What matters?

Grade 2 expectation:

Estimate, count, and represent (using the ¢ symbol) the value of a collection of coins with a maximum value of one dollar.

Big Idea

Numbers are compared in many ways.

lesson goal

Students will be able to determine
how to represent a cent amount
using only one type of coin

consolidating question

- lots for school picnic



\$4

- Tell several prices over \$100 she could have spent and several she could not have spent and how you know.

What would a great answer look like?

- students co-constructing criteria for a good answer
- where would they focus?

- some values in each category, but focus on the how
- why not two consecutive numbers
- why no numbers not four

- odd numbers not possible and why
- takes a known multiple of 4 and keeps adding 4 to it

so far...

- Prepare two points to make or questions to ask for later.

filtering expectations– how does it feel? good? nervous?

what matters?

- **Grade 6 expectation:**
- Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000

big idea

- There are many equivalent representations for a numerical relationship. Each one may be useful in a different circumstance.

lesson goal

- Students will recognize that changing the form of a relationship using proportional thinking can be useful to solving a problem.

consolidating question



500 heart beats in 4 minutes

- How long until 1 000 000 beats
- equivalent rate to start your thinking
- other useful equivalent rates?

What would a great answer look like?

- what would students value?

- CONCEPTUAL description
- why new description is equivalent
- why new description is useful

- notes that converting minutes to days involves an equivalence, too,

what matters?

- **Grade 9 expectation:**
- Solve problems involving ratios, rates, and directly proportional relationships in various contexts using a variety of methods

big idea

- There are many equivalent representations for a numerical relationship. Each may be more useful in a particular situation.

lesson goal

- Students will recognize that determining correct distances on a scale diagram or real distances from a scale diagram involves creating equivalents to the scale ratio or rate

consolidating question

- the entrance to the kitchen and the front door 12 cm apart on the map; 6m apart for real.
- says enough info to know about any two locations on map
- Agree or disagree? Explain why.

What would a great answer look like?

- what would students value?

- everywhere: an equivalent rate
(6m /12 cm) or ratio (600:12)
- would explain how to get it.

- can't have a different ratio in one part of the diagram as another
- explain why.

at this point...

- Points from earlier
- any changes?
- ideas? concerns?